

OntoHub Perspectives

The Ontohub team

12.12.12

Time plan

10h	Intro / Motivation / Know-How
10.30h	Ontohub and its background (OntoOp ISO standard, OOR community, Hets community)
11h	Ontohub.org web portal demo
11.30h	Ontohub architecture and data model
13h	Lunch
14h	Aims
14.30h	Motivation / Know-How / Work areas
15h	Organisation (regular meetings, programming sessions, github, issue tracker)
15.30h	Setup of development environment
ca. 16h	End

Michael Gruninger, Toronto



Intelligenz GmbH

- Ontology = shared (formal) conceptualisation (of a domain)
- Example: Pizza ontology
 - using Web Ontology Language OWL
 - tool for editing OWL ontologies: Protégé
<http://protege.stanford.edu/>

- Medicine (Snomed)
- Biology, Biochemistry (molecules . . .)
- Semantic Web
 - Semantic Mediawiki
 - better categories for Wikipedia
 - schema.org (Google, Yahoo, Microsoft)
 - structured content for HTML pages

- ambitious goals:
 - establishing a hosted registry-repository;
 - enabling and facilitating open, federated, collaborative ontology repositories, and
 - establishing best practices for expressing interoperable ontology and taxonomy work in registry-repositories.
- lots of OOR presentations at conferences
- regular Skype conferences
- implementation: only through Bioportal, only for OWL
- <http://www.oor.net>

bioportal.bioontology.org

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Find an ontology

Enter ontology name, e.g. NCI Thesaurus

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Search resources

Enter a term, e.g. Melanoma

[Advanced Resource Search](#)

Most Viewed Ontologies (October, 2012)

Ontology	Views
National Drug File	8441
SNOMED Clinical Terms	6277
International Classification of Diseases	4638
MedDRA	4144
NCI Thesaurus	1759

Latest Notes

[Suggest synonym removal \(Human disease ontology\)](#) about 1 month ago by cwockey
Suggest removing "cancer of prostate" as a synonym and associate this with the present term's par...

[Please use the tracker for this ontology to make notes \(Zebrafish anatomy and development\)](#) about 1 month ago by cervis
Please make comments, new term requests, issue reports etc for this ontology using the official t...

[Languages \(BRENDA tissue / enzyme source\)](#) about 1 month ago by anonymous
does the ontology contain terms in different languages?

[Terms \(BRENDA tissue / enzyme source\)](#) about 1 month ago by anonymous
How many terms does the BTO include?

[Please use the tracker for this ontology to make notes \(Uber anatomy ontology\)](#) about 1 month ago by cmungall
Please make comments, new term requests, issue reports etc for this ontology using the

Latest Mappings

[Neoplasm of uncertain behavior of testis \(MedDRA\) => Neoplasm of uncertain behavior of testis \(International Classification of Diseases\)](#)
NLM UMLS (MRMAP) 11/05/12 loom

[BALANITIS \(COSTART\) => Balanitis \(MedDRA\)](#)
NLM UMLS (MRMAP) 11/05/12 loom

[Poisoning by bromine compounds \(International Classification of Diseases\) => Poisoning by bromine compounds \(MedDRA\)](#)
NLM UMLS (MRMAP) 11/05/12 loom

[Radial styloid tenosynovitis \(MedDRA\) => Radial styloid tenosynovitis \(International Classification of Diseases\)](#)
NLM UMLS (MRMAP) 11/05/12 loom

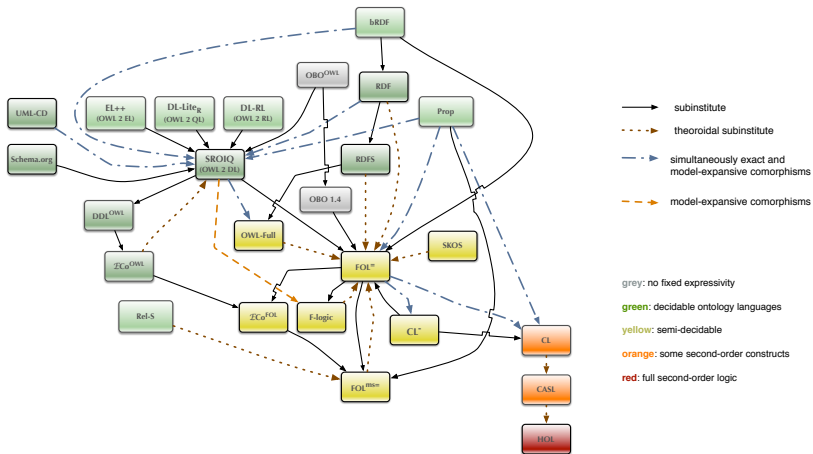
[Hair transplant \(International Classification of Diseases\) => Hair transplant \(MedDRA\)](#)
NLM UMLS (MRMAP) 11/05/12 loom

Statistics

Ontologies	329
Terms	5,484,331
Resources Indexed	28
Indexed Records	4,567,151
Direct Annotations	2,342,121,419
Direct Plus Expanded Annotations	17,816,182,671

- ISO Standard 17347 (currently: working draft)
- Distributed Ontology Language (DOL)
 - OWL (Web Ontology Language)
 - RDF (Resource Description Framework)
 - EER (Enhanced Entity-Relationship Diagrams)
 - Common Logic
 - UML (Unified Modeling Language)
 - ...
- Community of 10-15 experts
- bi-weekly Skype conferences
- <http://ontoiop.org>

OntolOp Logic Graph



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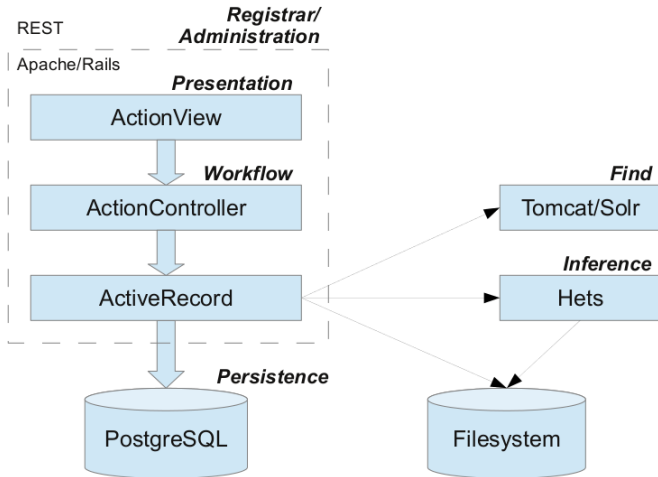


Heterogeneous Tool Set (Hets)

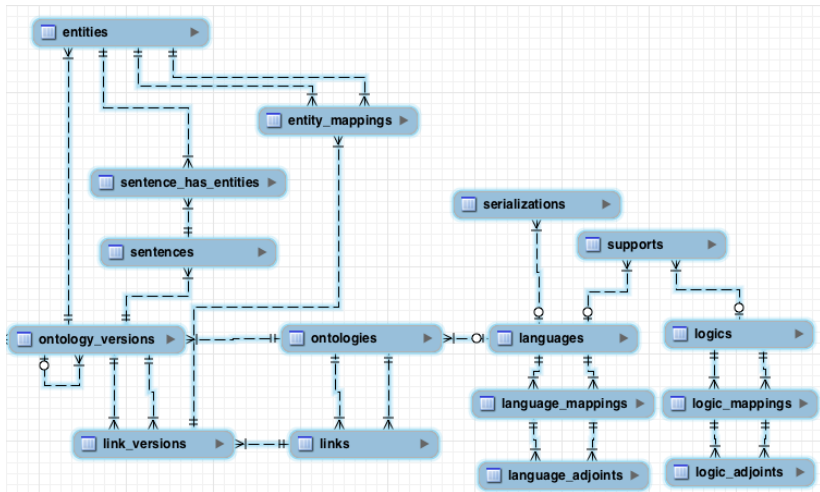
- Logic backend for OntoHub
- can parse and analyse all involved languages
- implements logic translations
- interface to about 15 proof tools
- anchored in algebraic specification community (WADT, CoFI, IFIP WG 1.3)
- <http://www.dfki.de/cps/hets>

- generalise Bioportal and OOR
⇒ provide a repository for heterogeneous ontologies
- provide a repository for OntoOp/DOL
- provide a web-frontend for Hets

Ontohub architecture



Ontohub data model



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SPATIAL COGNITION

OntoHub short-term and long-term goals

- Documentation / rdoc / top-down overview
- Keep functionality through tests
- CRUD functionality not only for ontologies, but also for logics, translations, ...
- display graph of ontologies and links (and logic graph)
- Reasoning (provide Hets GUI)
- Git backend (distributed development of ontologies)
- long-term goal: OOR architecture

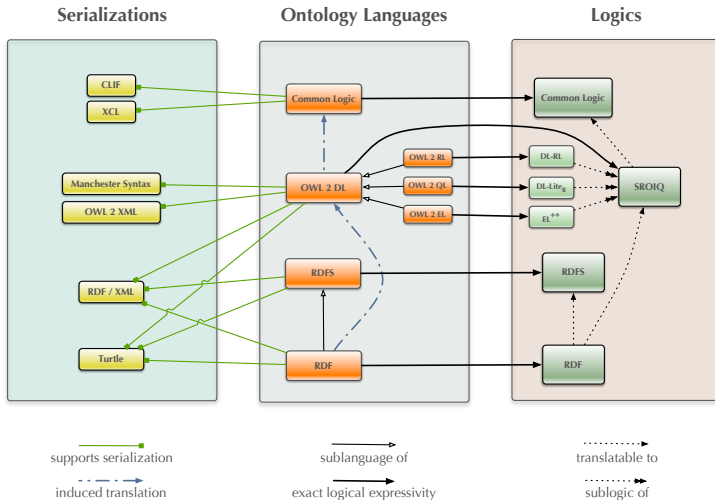
Test-driven development:

No line of code without test

- Fixtures: provide data for tests
- Unit tests: test single methods of models
- Functional tests: test controller actions
- Integration tests: test sessions (sequences of actions)

CRUD functionality for logics etc.

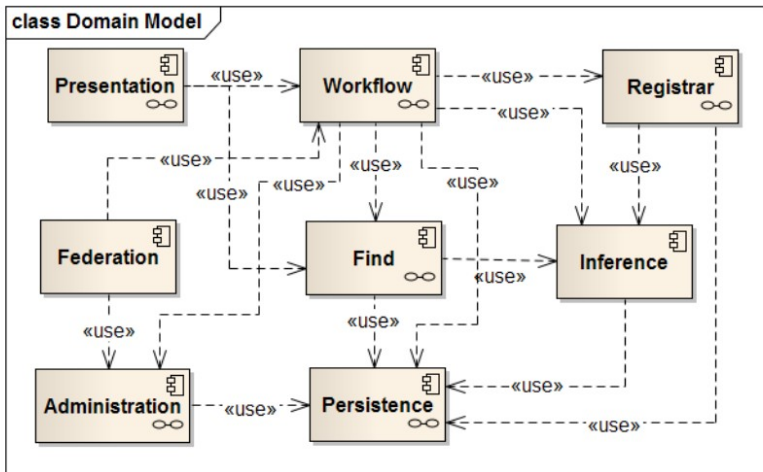
- re-use existing functionality for ontologies
- transfer this to links, logics, logic mappings, languages, language mappings, and serializations
- involve further tables like supports
- display lists of these things: see display of graphs
- read in logic graph from OntoOp registry (RDF)



- use graphviz / dot to generate svg from graph
- html and javascript can be embedded to svg
- use this to realise menus for nodes and links
- long-term goal: re-use Bioportal's fancy display



Revised Architecture



- New Rails model “repository”, which simultaneously provides namespace for ontologies
- underlying git or svn repositories
- permissions per repository (not per ontology)
- only contents of master branch is displayed in Ontohub
- store who has pushed when what
- server side git hooks

- who does what?
- meetings
- shared office in Cartesium